

Date: Thu, 27 Jan 94 04:30:39 PST
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
Errors-To: Ham-Homebrew-Errors@UCSD.Edu
Reply-To: Ham-Homebrew@UCSD.Edu
Precedence: Bulk
Subject: Ham-Homebrew Digest V94 #11
To: Ham-Homebrew

Ham-Homebrew Digest Thu, 27 Jan 94 Volume 94 : Issue 11

Today's Topics:

 Antenna pre-amp design. Help!
 Antenna Tuner Project Advice Needed (2 msgs)
 Digital Dial
 Power Supply Question
 XTAL source needed

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 26 Jan 1994 16:41:38 GMT
From: mvb.saic.com!unogate!news.service.uci.edu!usc!howland.reston.ans.net!
vixen.cso.uiuc.edu!ux2.cso.uiuc.edu!ignacy@network.ucsd.edu
Subject: Antenna pre-amp design. Help!
To: ham-homebrew@ucsd.edu

gary@ke4zv.atl.ga.us (Gary Coffman) writes:

>In article <1994Jan25.191202.1@ntuvax.ntu.ac.sg> asirene@ntuvax.ntu.ac.sg writes:
>> Can anyone here give me some advice on building an antenna pre-amp
>>for working 4 - 24 MHz? Should I go broadband or switched bands? What about
>>pre-filtering?

>Normally, a preamp is unnecessary for the HF spectrum. The usual problem
>is inadequate rejection of strong signals. However, if you've got an old
>deaf receiver, like say a S-28, a preamp may help. You definitely want to
>use a selective amplifier with good sharp tuned circuits. A triple ganged
>circuit would be a good idea. Otherwise your preamp will operate in overload

>most of the time.

A preamp may be needed for upper bands if bands are quiet and antennas not spectacular. A single tuned circuit would cut out a mirror frequency pretty well. Once I build a one-transistor preamplifier with one tuned circuit, and it made a large difference on my SWAN 500.

>> What are the advantages of designing one around bi-polar or mosfet?
>>Can anyone contribute some tried and tested circuits for me to construct?

>FETs would be the more popular choice. You can tap up on the selective
>circuits for lighter loading, hence higher Q, with less problems with a
>FET. The old MPF102 would work for this type of circuit, but it can
>be driven rather easily into overload. A power VMOS FET like the VMP-4
>may be a better choice. Run about 100 ma of standing current.

MOSFETs and FETs may have too low gain to drive the coax. Large-signal properties of a RF amplifier are not terribly important, especially with the tuned front. It is usually the mixer that is more susceptible to overloading.

Once I used a linearized bipolar transistor in the traditional configuration, linearized with a 50 Ohm (I am not sure of the exact value) resistor in the emitter. The coax was connected to the collector, which was fed by a 100-200 Ohm resistor. The current was about 20 mA.

>In looking through my collection of ARRL Handbooks, I don't find a
>HF preamp until I go back to the 1962 edition. They have one using
>a 6AK5 pentode. This should give you an idea of the apparent lack
>of need for such circuits with more modern equipment.

The problem of improper gain distribution in various stages is still a problem. Look at smaller ICOMs, where you can hear plenty of noise from the IF stages, particularly with a CW crystal filter in the first IF. Intermodos spoil the reception sometimes, but such a noise spoils it much more often. Sometimes I would like to have more RF gain in my IC-735 on 10-20m. Perhaps my antennas are not spectacular.

>If the problem is that you are using a small voltage probe antenna,
>a FET configured as an emitter follower mounted directly on the

>something more to the liking of the receiver and coax. Again run
>enough standing current to avoid overload problems.

Emitter followers driving a coax are excellent oscillators.

>Gary

>--

>Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
>Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
>534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
>Lawrenceville, GA 30244				

Ignacy Misztal, N09E

Date: Wed, 26 Jan 1994 14:55:10 GMT
From: wri!pea@uunet.uu.net
Subject: Antenna Tuner Project Advice Needed
To: ham-homebrew@ucsd.edu

I'm getting ready to put a dipole up and use ladderline to feed it. I'm going to need an antenna tuner so I can tune this wire across 160-10m.

I thought building a tuner would be a nice winter project. Do any of you have a favorite tuner project you would like to point me to?? My rig is an ICOM IC-740, 100 watts out.

Thanks for the help!

Bruce

Date: 26 Jan 1994 16:16:56 GMT
From: mvb.saic.com!unogate!news.service.uci.edu!usc!elroy.jpl.nasa.gov!newncar!csn!col.hp.com!jms@network.ucsd.edu
Subject: Antenna Tuner Project Advice Needed
To: ham-homebrew@ucsd.edu

Bruce Pea (pea@wri.com) wrote:

: I'm getting ready to put a dipole up and use ladderline to
: feed it. I'm going to need an antenna tuner so I can tune
: this wire across 160-10m.

: I thought building a tuner would be a nice winter project.
: Do any of you have a favorite tuner project you would like
: to point me to?? My rig is an ICOM IC-740, 100 watts out.

: Thanks for the help!

There are a lot of antenna coupler designs, and some folks have favorites that they defend quite strongly, however, I've had good luck with the 'Ultimate Transmatch' design that can be found in

older ARRL Amateur Radio Handbooks. Another design that is supposed to be good is the 'Series Parallel Capacitance (SPC)' that is shown in newer handbooks. I tried it and couldn't get it to do what I wanted, so went back to the 'Ultimate'. I haven't given up on the SPC, though, and have plans to try it again.

Mike, K0TER

Date: 21 Jan 94 23:37:40 GMT
From: auratek!epacyna@uunet.uu.net
Subject: Digital Dial
To: ham-homebrew@ucsd.edu

Date: Tue, 25 Jan 1994 14:13:06 GMT
From: pacbell.com!sgiblab!sdd.hp.com!elroy.jpl.nasa.gov!usc!
howland.reston.ans.net!gatech!wa4mei.ping.com!ke4zv!gary@network.ucsd.edu
Subject: Power Supply Question
To: ham-homebrew@ucsd.edu

In article <CK54KF.CGJ@rd1.InterLan.COM> tavernin@sun1.interlan.com (Victor Tavernini) writes:

>I just received to massive transformers for free and was wondering
>about their suitability for use in a 13.8V power supply.
>
>They have 48V center tapped secondaries rated at 12 Amps ...
>
>My question is -
>
>Does a typical center-tapped full wave rectifier limit me to 24V at 12 Amps?
>Also, is there a way of getting 24V at 24 Amps out of these things!?

I've faced this problem many times over the years. It seems that 24 and 48(CT) volt transformers are a lot more common than the 16 or 32(CT) volt transformers you want for a pass regulated 13.8 volt supply. The way I solve it is with a switching pre-regulator working on the primary side of the transformer. Chopping at 60 Hz isn't terribly efficient, but if you do a missing pulse design, switching at zero crossings and eliminating whole quarter cycles, you can get a good enough voltage at the filter capacitor to drive a normal series pass regulator without having excessive drop across it. You do need to maintain some load on the supply at all times or it becomes erratic. A heavy bleeder shunt

can handle this. If you want better efficiency, you can use a shunt pre-regulator circuit before the final pass regulator.

To get 24 amps, just parallel two of the transformers (watch winding phasing).

Of course there is another alternative. Open up the transformer and remove enough turns on the secondary winding to get the voltage down to the desired value. That's easier said than done in many cases, and silicon is cheap, iron is expensive, so using the pre-regulator approach is a good way to deal with the problem.

Gary

--

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534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

Date: 26 Jan 1994 15:50:46 GMT

From: mvb.saic.com!unogate!news.service.uci.edu!usc!elroy.jpl.nasa.gov!newncar!csn!col.hp.com!jms@network.ucsd.edu

Subject: XTAL source needed

To: ham-homebrew@ucsd.edu

Patrick Tatro (patrick_tatro@stortek.com) wrote:

: Im looking for a vendor willing to supply crystals in the 1 or 2 quantity
: basis. Most vendors have minimum quantities that far exceed my needs. I am
: also not sure if I can locate crystals at 16.660Mhz and 16.600Mhz. Im trying
: to convert an FM pocket tranciever into a cordless phone unit. Any help will
: be greatly appreciated.

I order my crystals from either International Crystal Mfg. (ICM), 1-800-426-9825, or Jan Crystals, 1-800-526-9825 (just noticed the similarity between those numbers, but I've talked to both outfits recently on their 800 numbers). They will make crystals for any frequency, holder style, etc that you need. They keep crystal data for a lot of equipment, so you can sometimes just specify the unit you need the crystal for. Other times, like the 200 kHz I needed for an old R-390A receiver, you must specify the type of circuit, etc. I once copied part of a schematic diagram and sent it in and let their people determine the crystal load capacitance for me. They both seem to be very accommodating people. Obviously, I'm assuming you're located in the U.S.--not sure by your posting.

Mike K0TER

Date: (null)

From: (null)

Built and tested (2) PCB set. The main logic board is 5"W x 3"D and the display board is 4 5/8" W x 2 1/8" H. Not included is 5V power supply and enclosure.

Features (4) .3"H 7 segment LED's. For example, 14.285500 Mhz will be displayed as 285.5. The counter has selectable presets (via dip switches) on the decimal counters and it can count in either the up or down direction. These features allow the unit to be used on any receiver / transmitter mixing scheme (i.e. The VFO frequency is counted and the frequency of the IF, offsets etc. are added or subtracted).

Ideal for updating your Drake, Tentec etc. or adding to your homebrew project.

Price is \$45.00 + shipping.

Reply to ed@auratek.com

73

Ed W1AAZ

End of Ham-Homebrew Digest V94 #11
